1   CLAIMS

2   We claim:

3   1.   In a PDA having a processor, an operating system, a memory and a communication link with

4   a server, a method for retrieving and executing Java applications comprising the steps of:

5

6   initiating a connection from a PDA to a server;

7

8   displaying a menu of available programs to a user;

9

10   upon the user's selection of one or more programs, retrieving said selected one or more

11   programs from said server and copying said selected one or more programs into said

12   memory,

13

14   executing said selected one or more programs on said PDA,

15

16   providing one or more links whereby said selected one or more programs may use facilities

17   on said PDA,

18

19   providing one or more links whereby said selected one or more programs may exchange

20   information with other programs executing on said PDA,

21

22   2.   A method for retrieving and executing Java applications as claimed in claim 1 wherein said

23   selected one or more programs are Java applications that consist of bytecode instructions,

1   and said PDA also includes a Java virtual machine that processes said bytecode instructions

2   and sends machine instructions to said PDA's operating system.

3

4   3.   A method for retrieving and executing Java applications as claimed in claim 2 wherein said

5   available programs displayed on said menu are Java applications.

6

7   4.   A method for retrieving and executing Java applications as claimed in claim 3 wherein said

8   connection to said server is a wireless connection that is maintained during execution of said

9   selected one or more programs.

10

11   5.   A method for retrieving and executing Java applications as claimed in claim 4 wherein, if

12   said wireless connection to said server should be broken while said selected one or more

13   programs are executing, said wireless connection will automatically be reestablished.

14

15   6.   A method for retrieving and executing Java applications as claimed in claim 3 wherein said

16   connection to said server is a wireless short-term connection that is terminated after said

17   selected one or more programs has been copied to said memory of said PDA.

18

19   7.   A method for retrieving and executing Java applications as claimed in claim 3 further

20   comprising the step of terminating the execution of said selected one or more programs upon

21   a user's entry of a termination signal.

22

23

1   8.   A method for retrieving and executing Java applications as claimed in claim 7 wherein said

2   step of retrieving and copying said selected one or more programs to said memory further

3   comprises maintaining said selected one or more programs in said memory following said

4   termination of said selected one or more programs until said selected one or more programs

5   are released from said memory upon the occurrence of a user initiated action.

6

7   9.   A method for retrieving and executing Java applications as claimed in claim 3 wherein

8   information generated by said selected one or more programs is transmitted to said server

9   for synchronization of information preexisting on said server.

10

11   10.   A method for retrieving and executing Java applications as claimed in claim 3 wherein

12   information on said server is transmitted to said PDA for synchronization of information

13   preexisting on said PDA.

14

15   11.   A method for retrieving and executing Java applications as claimed in claim 3 wherein, said

16   step of displaying a menu of available programs to a user further comprises the receipt by

17   said PDA of menu information from said server.

18

19   12.   A method for retrieving and executing Java applications as claimed in claim 11 wherein said

20   step of retrieving menu information from said server further comprises retrieving only

21   sufficient information such that, when said retrieved information is merged with other

22   information preexisting in said PDA's memory, said menu of available programs will be

23   displayed as a complete menu.

1		
2	13.	A method for retrieving and executing Java applications as claimed in claim 3 wherein said
3		step of providing one or more links to facilities on said PDA further comprises providing
4		links to one or more facilities taken from the group consisting of an IR port, a parallel port,
5		a serial communications port, a wireless communications port, a network interface, a port
6		for a camera, a port for connecting to a sound system, a port for connecting to a cellular
7		telephone, a port for connecting to a television, a SCSI interface, a disk drive, a modem, an
8		external keyboard, a mouse, a graphical input tablet, and an external monitor.
9		
10	14.	A method for retrieving and executing Java applications as claimed in claim 3 wherein said
11		step of providing one or more links for exchanging information with other programs
12		operating on said PDA further comprises converting said information into a format from
13		which it may be received and processed by each said program to which said information will
14		be provided.
15		
16	15.	A method for retrieving and executing Java applications as claimed in claim 14 wherein said
17		other programs operating on said PDA are programs that permanently reside within said
18		PDA.
19		
20	16.	A method for retrieving and executing Java applications as claimed in claim 3 wherein said
21		wireless connection is a narrow bandwidth connection.
22		
23	17.	A method of retrieving and executing Java applications as claimed in claim 3 wherein said

1   connection to said server comprises encrypted communications.

2

3   18.   A method of retrieving and executing Java applications as claimed in claim 3 wherein said

4   connection to said server is a wireless connection and, if said wireless connection should be

5   broken while data is being transmitted across said connection, data transmission will

6   automatically be resumed upon reconnection.

7

8   19.   In the memory of a PDA having a processor, an operating system, a display, a plurality of

9   services, and a communications link to a server, said memory containing a Java virtual

10   machine (JVM), a thin client for providing services to a one or more selected Java

11   applications comprising:

12

13   a module for initiating and maintaining a connection from a PDA to a server;

14

15   a module for displaying a menu of available programs on said server to a user;

16

17   a module for retrieving one or more selected Java application s from said server and copying

18   said one or more selected Java application into said memory,

19

20   a module for interfacing with said JVM and said operating system to execute said one or

21   more selected Java applications on said PDA,

22

23   a module for linking said one or more selected Java applications to facilities on said PDA

1   needed to run said one or more selected Java applications,

2

3   a module for exchanging information between said one or more selected Java applications

4   and other programs executing on said PDA,

5

6   said modules being interconnected whereby said thin client provides an interface between

7   said one or more selected Java applications and at least one or more of said server, said

8   JVM, said operating system, said other programs, and said facilities on said PDA to enable

9   said one or more selected Java applications to utilize said services.

10

11   20.   A thin client as claimed in claim 19 further comprising a module for terminating the

12   execution of said one or more selected Java applications upon the receipt of a termination

13   signal.

14

15   21.   A thin client as claimed in claim 20 wherein said module for displaying a menu of available

16   programs for downloading from said server further comprises a module for retrieving at least

17   a portion of a menu of available programs from said server and displaying said menu on said

18   display.

19

20   22.   A thin client as claimed in claim 19 wherein said connection comprises a wireless

21   connection.

22

23   23.   A thin client as claimed in claim 19 wherein said connection comprises an encrypted

1   communications link.

2

3   24.   A processor in a PDA wherein said processor is programmed to initiate and maintain a

4   connection from said PDA to a server;

5

6   to retrieve from said server at least a portion of a menu containing programs available for

7   downloading from said server;

8

9   to retrieve from said server and execute on said PDA one or more selected Java applications;

10

11   to provide one or more facilities to said one or more selected Java applications from the

12   group consisting of a wireless connection to said server, an IR port, a parallel port, a serial

13   communications port, a network interface, a port for a camera, a port for connecting to a

14   sound system, a port for connecting to a cellular telephone, a port for connecting to a

15   television, a SCSI interface, a disk drive, a modem, an external keyboard, a mouse, a

16   graphical input tablet, and an external monitor;

17

18   to exchange data between said one or more selected Java applications and other programs

19   on said PDA.

20

21   25.   A processor in a PDA as claimed in claim 24 wherein said processor is additionally

22   programmed to initiate one or more connections to one or more remote processing devices

23   and to send to said one or more remote processing devices data developed by said one or

1   more selected Java applications.

2

3   26.   A processor in a PDA as claimed in claim 24 wherein said connection is a wireless

4   connection.

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6   27.   A processor in a PDA as claimed in claim 26 wherein said processor is additionally

7   programmed to maintain said wireless connection to said server until execution of said one

8   or more selected Java applications has terminated.

9

10   28.   A processor in a PDA as claimed in claim 26 wherein said processor is additionally

11   programmed to terminate said wireless connection to said server before or during execution

12   of said one or more selected Java applications such that said wireless connection is closed

13   during at least a portion of the time said one or more selected Java applications are

14   executing.

15

16   29.   A processor in a PDA as claimed in claim 26 wherein, if said wireless connection should be

17   terminated during the transfer of data across said connection, said processor is additionally

18   programmed to automatically reestablish said connection and resume said transfer of data.

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